National Institute of Environmental Health Sciences

Not without cause: Vibrio parahaemolyticus induces acute autophagy and cell death

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Abstract:

Vibrio parahaemolyticus (V. parahaemolyticus) is a gram-negative halophillic bacterium that causes worldwide seafood-borne gastroenteritis. The prevalence of V. parahaemolyticus in the environment and incidence of infection have been linked to rising water temperatures caused by global warming. Among its virulence factors, V. parahaemolyticus harbors two type III secretion systems (T3SS). Recently, we have shown that T3SS1 induces rapid cellular death that initiates with acute autophagy, as measured by LC3 lipidation and accumulation of early autophagosomal vesicles. While not the first characterized pathogen to usurp autophagy, this is the first example of an extracellular pathogen that exploits this pathway for its own benefit. Here we discuss possible roles for the induction of autophagy during infection and discuss how V. parahaemolyticus-induced autophagy provides insight into key regulatory steps that govern the decision between apoptosis and autophagy.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2788499

Resource Description

Exposure : ☑

weather or climate related pathway by which climate change affects health

Food/Water Quality

Food/Water Quality: Pathogen

Geographic Feature: ☑

resource focuses on specific type of geography

Ocean/Coastal

Geographic Location: ☑

resource focuses on specific location

Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Foodborne/Waterborne Disease

Foodborne/Waterborne Disease: Vibrioses

Resource Type: ☒

format or standard characteristic of resource

Review

Timescale: ☒

time period studied

Time Scale Unspecified